

Flight Scientist Report
Saturday 6/26/2021 ACTIVATE RF89

Flight Type: Statistical Survey Flight
Flight Route: KLFI ATLIC OUTES W-72 ATLIC KLFI
Special Notes:

King Air

Pilot report (Wusk):

Planned as second flight of the day on a UC-12 double flight day; cooperative flight with the HU-25. Planned route: KLFI ATLIC OUTES W-72 ATLIC KLFI for a Process study event. Takeoff from runway 08 after HU-25. Good ATC departure and climb to FL280. Aircraft generators functioned nominally on this flight with a nominal balance of load. HU25 led into W-72 searching for a acceptable target for Process study. After identifying and setting up on an initial target, the conditions proved to not be as desired. The aircraft proceeded south until a plan for a switch to statistical survey was implemented. The aircraft traversed between 35N74W to 3630N07250W NE bound, reversed back SW to the southern point, then proceeded back NE about halfway. The aircraft then headed direct to ATLIC due to the need for Wx alternate requirements (additional fuel) on arrival at LFI. Proceeded to ATLIC for the descent into Langley. Both aircraft vectored for a ILS 26. Langley temporarily closed due to lightning in the vicinity requiring both aircraft to airborne hold until the field opened. Normal landing at KLFI with some light to moderate rain approaching from the south, runway 26. Crew was Delaney, Wusk, Shingler, and Seaman.

Flight scientist report (Seaman):

Approx. takeoff: 13:25 EST

Approx. landing: 16:49 EST

Summary: Single sortie on the UC12 was a **statistical survey** joint flight with the HU25 Falcon. Initially, it was planned to be a process study, but no target clouds could be identified.

Flight plan: approximately KLFI ECG OXANA (some points called on the fly due to lack of cloud target for process study) OXANA ECG KLFI

QNC(s): Shane Seaman was the operator for HSRL-2, RSP, the cameras,
Taylor Shingler operated the sondes.

HSRL-2: nominal operation.

RSP: nominal operation.

Cameras: nominal operation.

Sondes: A total of 6 sondes were dropped.

Falcon

Pilot report (Slover):

Takeoff KLF1: 1320L

Landing KLF1: 1645L

Duration: 3.4

ACTIVATE research intended as a process study. Flew cloudy statistical profile from ATLIC to W-72 until reaching the process objective area, but no clouds met the intended criteria. Attempted flight with one cloud but tops were only 5500 feet. Transitioned to a cloudy statistical survey module within W-72 from SW to NE corners. RTB a little early due to thunderstorms forecasted. Orbited for 20 min awaiting airfield to open following lightning within 5 nm restriction.

Flight scientist report (Crosbie):

This flight was launched as an attempted process study but the cloud conditions did not support it, so we reverted to the stat survey. There was a clear region on the outbound towards the initial process targets. These cloud regions looked initially favorable but it quickly became clear that the primary target was decaying rapidly and also did not have the appearance of a main convective cell rather it was just a collection of shallow cu. The secondary target was already well on the way to deep convection and was not appropriate. The stat survey was conducted in the vicinity of where these process study target clouds were, offset to the east. The survey legs were fully within a field of shcu with no development above about 5000ft. (3 full cloudy, 1 clear)

Eddie:

17:20:51 Takeoff

18:06 Flying over process study cloud

18:08 AC3 flow sometimes spiking and unstable

Process study cloud collapsing so changing to statistical survey

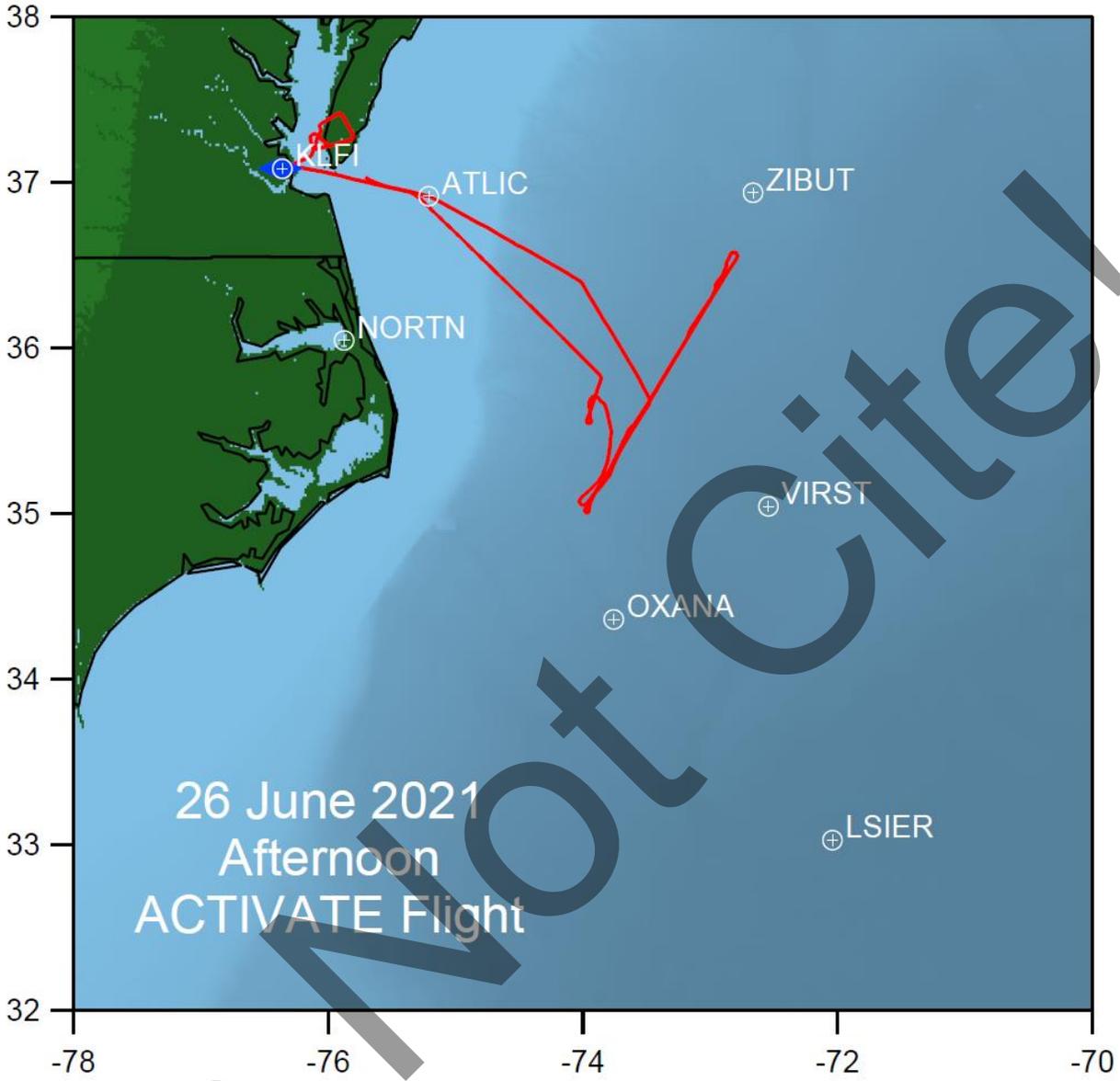
20:13:30 Lost REVEAL feed

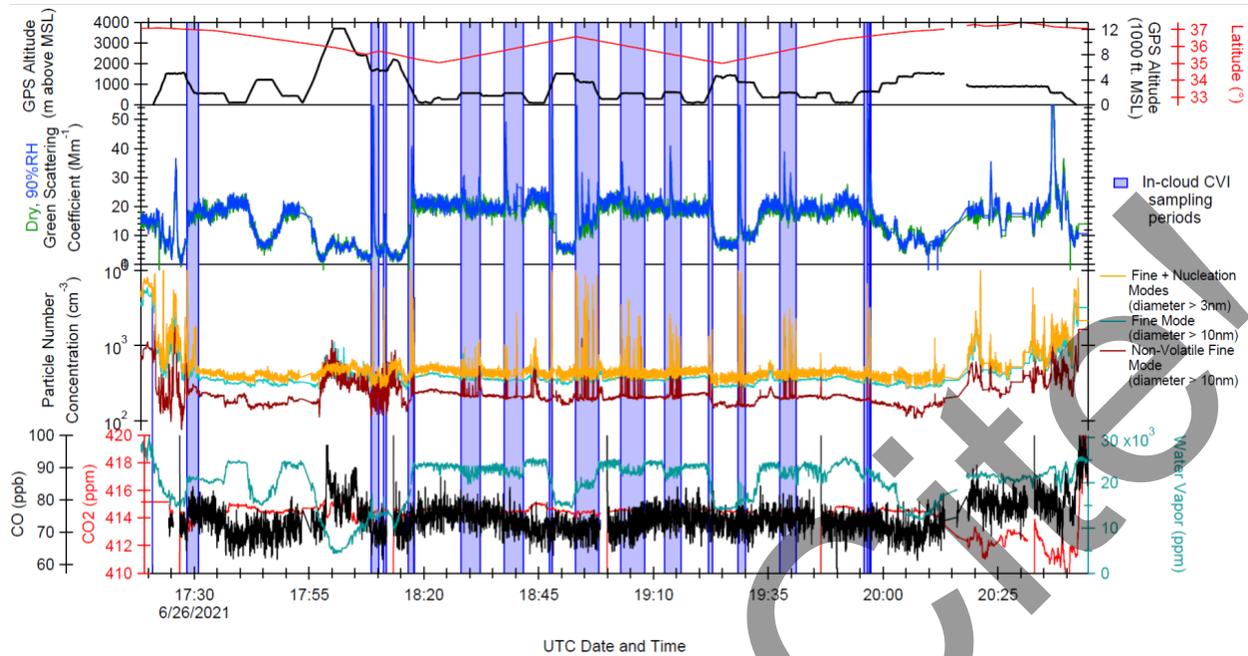
20:18:12 Was able to get REVEAL back

20:37 WCM & humidifier turned off in preparation for landing after long delay in landing because of thunder storm at LaRC

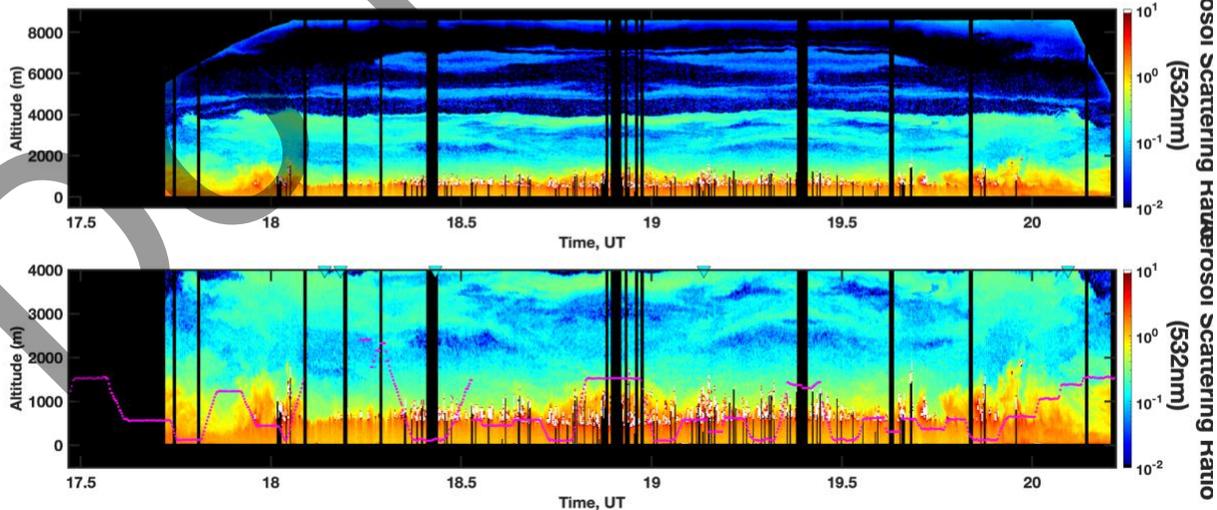
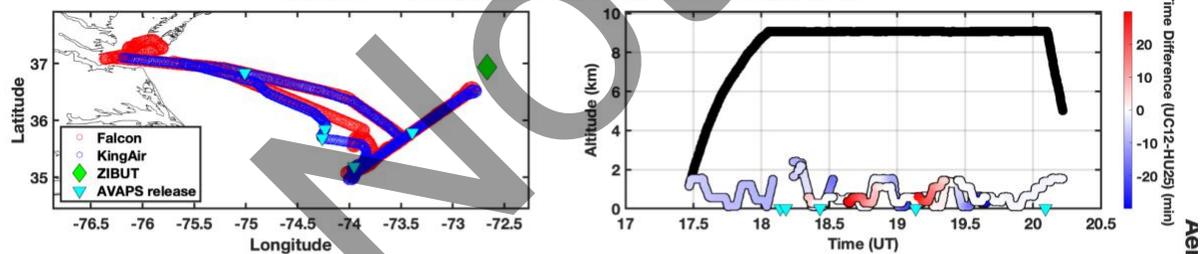
20:42:23 Landing

Do Not Cite!





20210626 - ACTIVATE - KingAir and Falcon flight tracks



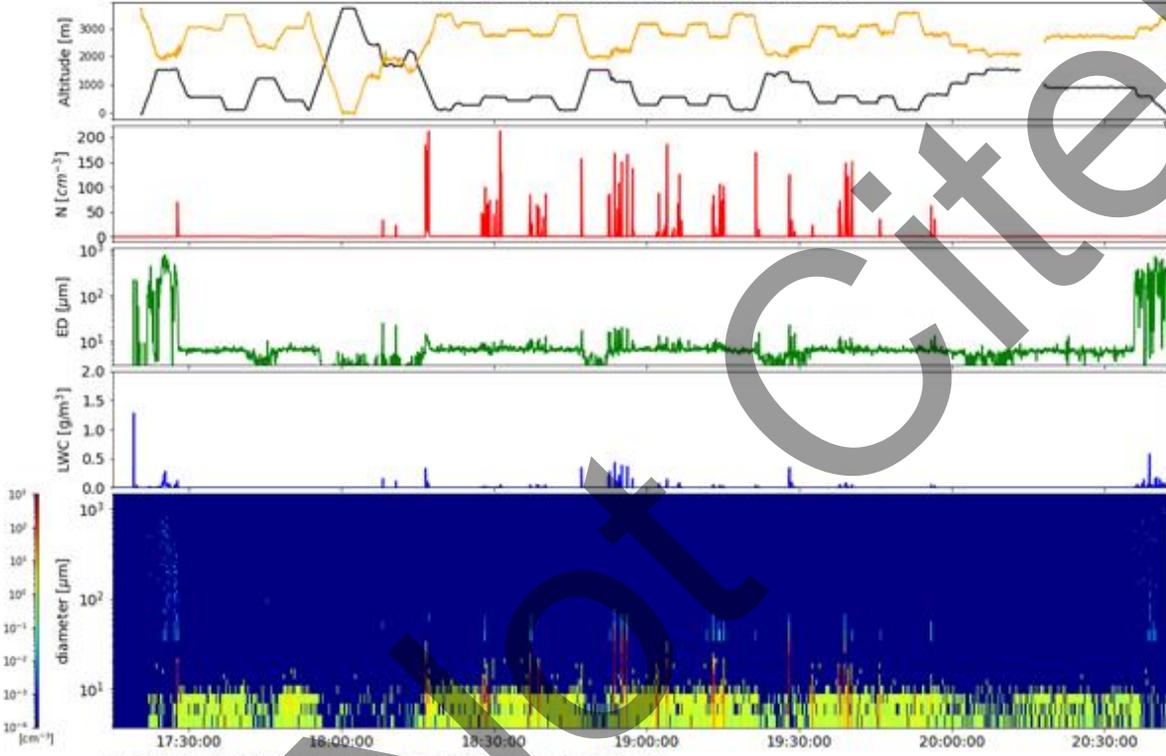
Quicklook ACTIVATE Cloud Probes (FCDP & 2DS) Quicklook

preliminary data, only for quicklook use

Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie



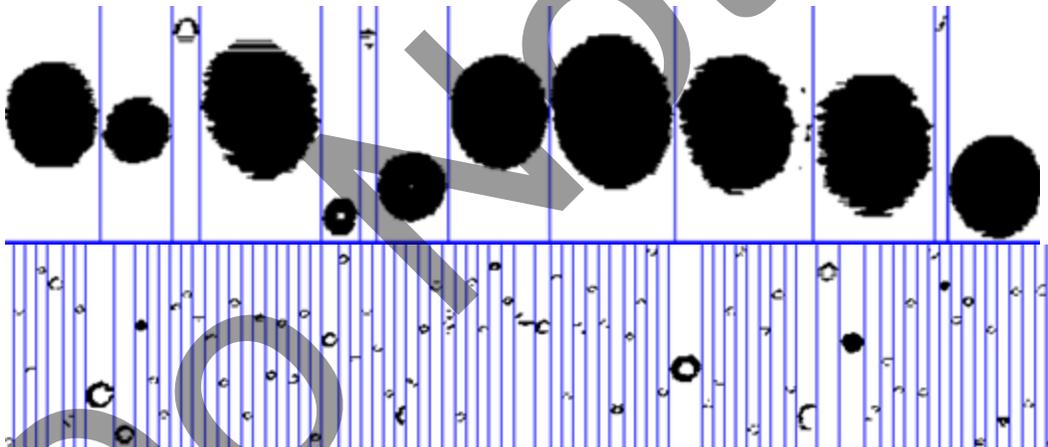
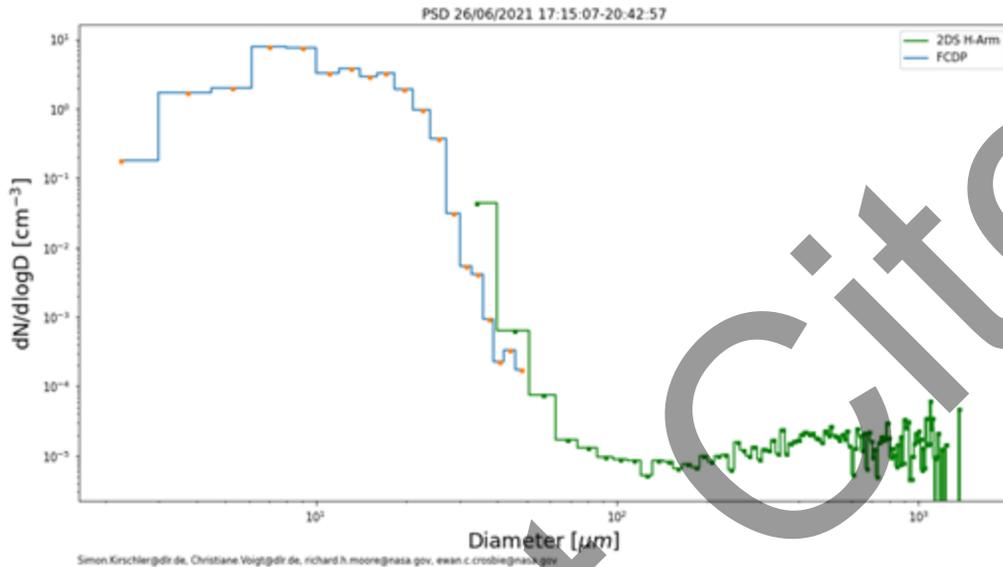
Cloud Probes (FCDP & 2DS) Quicklook 26/06/2021 17:15-07-20:42:57



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PSD ACTIVATE

preliminary data, only for quicklook use
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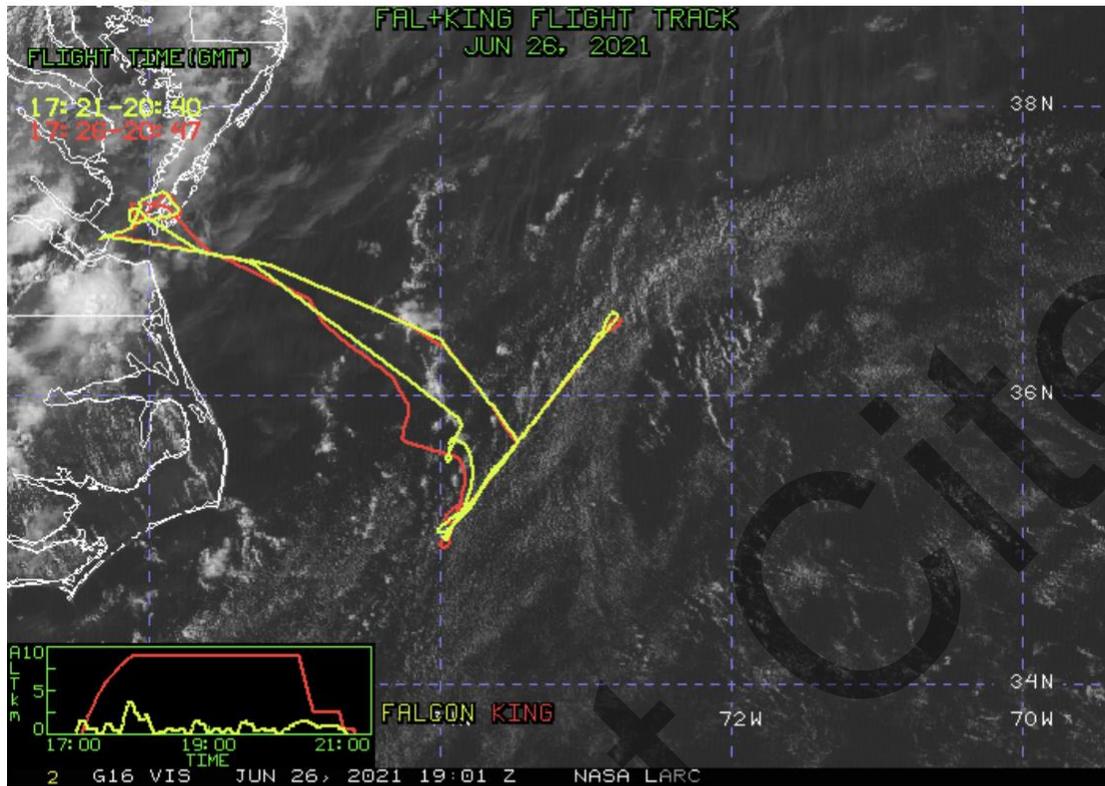


Only pure liquid clouds with precipitation ~ 17:25 UTC / 20:36 UTC and drizzle ~ 18:10 UTC / 18:55 UTC.

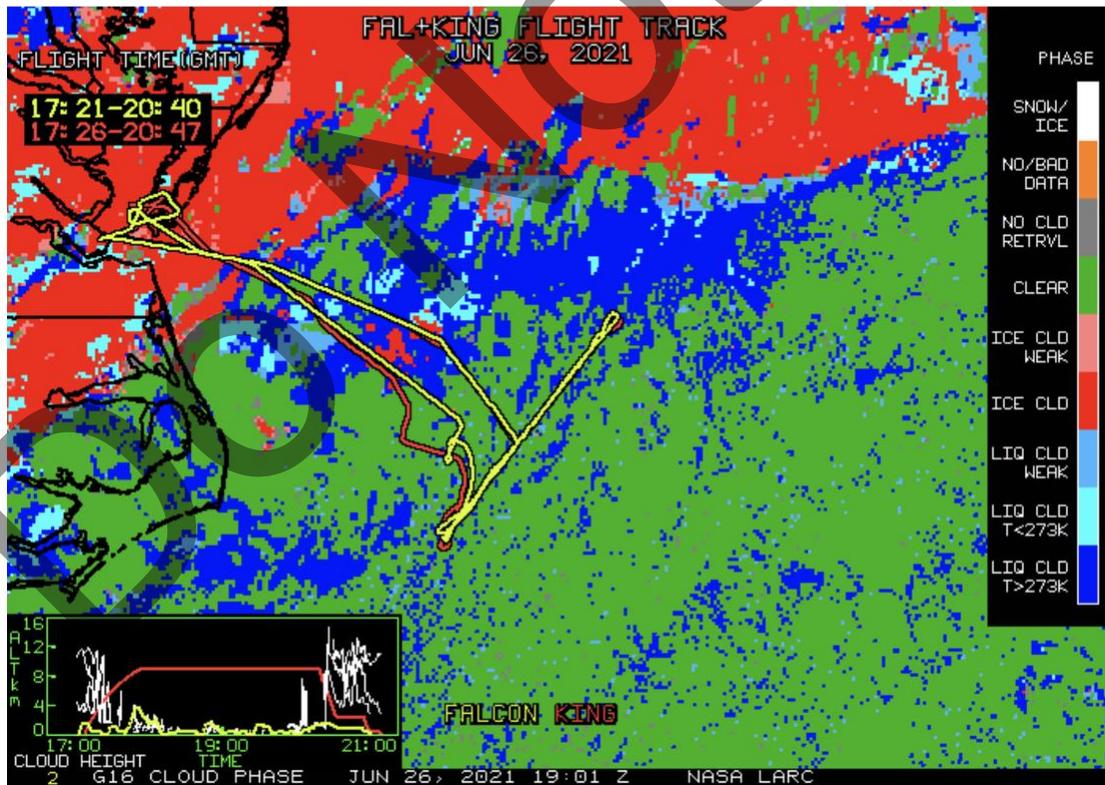
NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 89, 19:01 UTC Jun 26, 2021

Do Not Cite!

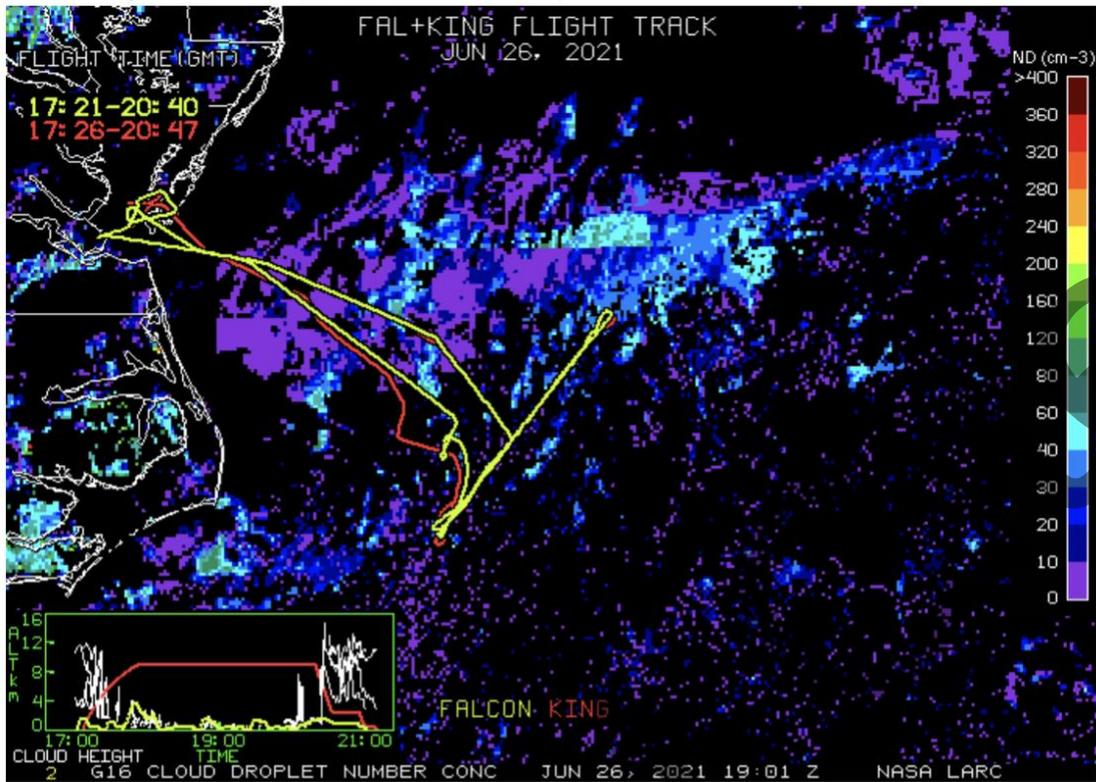
Visible Image



Cloud Phase



Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)

